

CLAIMS

What is claimed is:

1. An apparatus for protecting data using locks, the apparatus comprising:
a lock manager configured to control access via a lock to protected data
5 maintained in native storage independent of the lock manager, wherein the lock manager
does not access said protected data from said native storage; and
a plurality of requesters;
wherein the lock manager is configured to receive lock requests for the lock from
each of the plurality of requesters, and to selectively grant said lock requests which
10 includes communicating grants from the lock manager to the plurality of requesters,
wherein at least one of said communicated grants includes said protected data.
2. The apparatus of claim 1, wherein at least one of said communicated grants
does not include said protected data.
3. The apparatus of claim 1, wherein each of said communicated grants includes
15 an indication of whether or not said protected data is being communicated therewith.
4. The apparatus of claim 1, wherein each of said communicated grants includes
an indication of whether or not said protected data is requested to be sent to the lock
manager with a corresponding release of the lock.
5. The apparatus of claim 1, wherein each of said lock requests includes an
20 indication of whether or not the corresponding one of the plurality of requesters will
accept said protected data from the lock manager.

6. A method performed by a lock manager controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, the method comprising:

receiving a release of a lock for use in controlling access to said protected data,
5 the release including said protected data;
identifying a next requester to be granted the lock in response to said receiving the release of the lock;
copying said protected data from the release into a grant message; and
sending the grant message to the next requester, the grant message including said
10 protected data.

7. The method of claim 6, wherein the grant message includes an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the
15 release message.

8. A computer-readable medium containing computer-executable instructions for performing steps by a lock manager for controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, said steps comprising:

receiving a release of a lock for use in controlling access to said protected data,
20 the release including said protected data;
identifying a next requester to be granted the lock in response to said receiving the release of the lock;
copying said protected data from the release into a grant message; and
25 sending the grant message to the next requester, the grant message including said protected data.

9. The computer-readable medium of claim 8, wherein the grant message includes an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the release message.

10. A lock manager controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, the lock manager comprising:

- means for receiving a release of a lock for use in controlling access to said protected data, the release including said protected data;
- means for identifying a next requester to be granted the lock in response to said receiving the release of the lock;
- means for copying said protected data from the release into a grant message and for sending the grant message to the next requester.

11. The lock manager of claim 10, means for including in the grant message an indication of that said protected data is requested to be sent to the lock manager in a release message corresponding to the grant message if another requester is waiting for the lock, else an indication that said protected data is not requested to be sent to the lock manager in the release message.

12. A method performed by a lock manager controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, the method comprising:

5 receiving locking requests for a lock controlling access to said protected data from a first requester and a second requester;

sending a first grant message to the first requester, the first grant message not including said protected data, and in response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said protected data in the first grant message;

10 receiving a first release message corresponding to the first grant message for the lock from the first requester, the first release message including said protected data.

13. The method of claim 12, comprising sending a second grant message to the second requester, the second grant message including said protected data, and an indication of whether or not to send said protected data in a second release message.

15 14. The method of claim 13, wherein the second grant message includes an indication to send said protected data in the second release message in response to identifying another requestor is waiting for access to the lock.

15 15. The method of claim 13, wherein the second grant message includes an indication not to send said protected data in the second release message in response to
20 identifying another requestor is not waiting for access to the lock.

16. The method of claim 13, wherein the second grant message includes an indication not to send said protected data in the second release message; and the method comprises in response to said indication not to send said protected data in the second release message, the second requester storing said protected data and not including said
25 protected data in the second release message.

17. A computer-readable medium containing computer-executable instructions for performing steps by a lock manager for controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, said steps comprising:

5 receiving locking requests for a lock controlling access to said protected data from a first requester and a second requester;

 sending a first grant message to the first requester, the first grant message not including said protected data, and in response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said
10 protected data in the first grant message;

 receiving a first release message corresponding to the first grant message for the lock from the first requester, the first release message including said protected data.

18. The computer-readable medium of claim 17, wherein said steps comprise sending a second grant message to the second requester, the second grant message
15 including said protected data, and an indication of whether or not to send said protected data in a second release message.

19. The computer-readable medium of claim 18, wherein the second grant message includes an indication to send said protected data in the second release message in response to identifying another requestor is waiting for access to the lock.

20 20. The computer-readable medium of claim 18, wherein the second grant message includes an indication not to send said protected data in the second release message in response to identifying another requestor is not waiting for access to the lock.

21. The computer-readable medium of claim 18, wherein the second grant message includes an indication not to send said protected data in the second release message; and said steps comprise in response to said indication not to send said protected data in the second release message, the second requester storing said protected data and
5 not including said protected data in the second release message.

22. A lock manager controlling access to protected data maintained in native storage independent of the lock manager, wherein the lock manager does not access said protected data from said native storage, the lock manager comprising:
means for receiving locking requests for a lock controlling access to said
10 protected data from a first requester and a second requester;
means for sending a first grant message to the first requester, the first grant message not including said protected data, and in response to identifying one or more requesters is waiting for the lock after the first requester, including an indication to return said protected data in the first grant message;
15 means for receiving a first release message for the lock from the first requester, the first release message including said protected data.

23. The lock manager of claim 22, comprising means for sending a second grant message to the second requester, the second grant message including said protected data, and an indication of whether or not to send said protected data in a second release
20 message.

24. The lock manager of claim 23, comprising means for including in the second grant message an indication to send said protected data in the second release message in response to identifying another requestor is waiting for access to the lock.

25. The lock manager of claim 23, comprising means for including in the second grant message an indication not to send said protected data in the second release message
25 in response to identifying another requestor is not waiting for access to the lock.

26. The lock manager of claim 23, comprising: means for including in the second grant message an indication not to send said protected data in the second release message; and means for the second requester to store said protected data and not to include said protected data in the second release message in response to said indication not to send

5 said protected data in the second release message.